# Gender and Mathematics Education in Pakistan: A situation analysis

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*Abstract: This paper reports from a situation analysis of gender issues in mathematics education in Pakistan. It was undertaken at the initiation of a large scale project which aimed to understand how curriculum change in mathematics and science education may be implemented in ways that contribute to poverty alleviation and promote gender equity in disadvantaged rural settings. The paper posits that issues of access, achievement and quality of mathematics education are integrally linked with questions of equity, in this case gender equity. It identifies several questions and arenas for further research and makes recommendations for policy and practice in mathematics education.*

Key words: gender equity, developing world, disadvantaged settings

## INTRODUCTION TO THE CONTEXT AND BACKGROUND

Pakistan's Education system can be broadly divided into 'Basic Education' (primary, elementary and secondary levels) and Higher Education (post secondary and graduate levels). Both are governed by separate ministries with distinct management and financial systems. Mainstream or government schools offer primary education from class I – V (5 to 9) and then middle or elementary schooling, class VI-VIII (10-13) and finally secondary schooling, class IX – X (14 –

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*The Montana Mathematics Enthusiast*, **ISSN 1551-3440, Vol. 7, no.1**, pp.47- 62

15). In classes IX and X students take the secondary school matriculation examination which is conducted by the Boards of Secondary Education.

Mathematics is also taught as a compulsory subject in classes I – VIII. The curriculum content is organized mainly into five major strands, number and number operations, measurement, geometry, data handling and algebra. At the secondary level (classes IX & X) students can opt to take science group or general group. The former includes among other subjects physics, chemistry, biology and advanced mathematics (with a greater focus on algebra, functions, and trigonometry). The latter includes humanities and a course in general mathematics (with greater emphasis on arithmetic and less emphasis on algebra, functions and trigonometry). However, in 1995-96 the policy has changed according to which both groups take the same course in mathematics at the secondary level. In Pakistan policy making, including Education Policy and setting the strategic direction is the responsibility of the federal government[2]. Implementation is mostly carried out by the provincial governments and more recently from provincial to districts level. Curriculum development is the purview of the ministry of education in the federal government and is undertaken through a consultative process with the provincial governments through their respective education departments.

The National Curriculum 2006 is organized in five standards which have been kept broad for flexible interpretations. These standards are: I) Numbers and Operations, II) Algebra, III) Measurements and geometry, IV, Information handling, V) Reasoning and logical thinking. This last is a significant new addition because as the documents states it would enable a focus on standards and bench marks for development of mathematical thinking. In the national curriculum for mathematics the teachers’ role has been rerouted from dispensing information to planning investigative tasks, managing cooperative learning environment, and supporting students’

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[2] Pakistan is a federation with four provinces i.e. Punjab, Sindh, Baluchistan and North West Frontier Province (NWFP); federally administered areas, Azad Jammu and Kashmir, and the federal capital Islamabad. Sindh and Baluchistan include some of the most poverty stricken regions in the country.

creativity in developing rational understanding of the concepts of mathematics (MoE 2006, National Curriculum for Mathematics grades I – XII, p. 2-3).

Besides the government schools in the mainstream there is burgeoning private sector in education. According to certain reports the private sector provision at primary levels is as large as 30 -33% (Andrabi 2008). However, this report is mainly concerned with the government schools.

The situation analysis reported in this paper was undertaken from 1st June 2006 – 31 May 07 as part of initiating a large action research project to study the process of implementation of curriculum reform to generate knowledge that would improve education quality for the poorest in the world and raise gender equity. The research team included university academics and school teachers as primary participants. Secondary participants included district education officers, head teachers, parents and students. While the research took place in several countries this paper focuses on Pakistan. (for details see www.edqual.org).

The situation analysis involved a literature review, interviews with key education stakeholders on their perceptions and understanding of gender issues in mathematics classrooms and anlaysis of textbooks from a gender perspective. The education stakeholders included teachers, district education officers, head teachers and teacher educators from a poverty stricken district in Sind in southern Pakistan. Selection of the district was made on the basis of a District Education Index (DEI). The DEI investigates the dispersion in the educational status of districts irrespective of their economic status and measures the average shortfall from a perfect score of 100 percent. The closer the value of the DEI is to 100, the better endowed it is with respect to education variables (SPDC, 2002-03). District Thatta was found to be at the bottom quintile amongst all districts in Sindh on the basis of the DEI. From the nine Talukas (sub-district unit) of Thatta, Mirpur Sakro was selected as it is among the most poverty-ridden talukas in the district. Schools for inclusion in the action research project were selected from this taluka. Of a total twelve high schools in taluka Mirpur Sakro four were included in the action research. Hence detailed school profiles were developed of these four schools including information on teacher qualifications. It was found that there was great disparity in teacher qualification in boys and girls schools. Women teachers in the participating schools did not have mathematics as their major in the undergraduate or graduate studies. The male teachers had studied mathematics at least up to their first degree. The disparity in teacher quality in girls' school and boys' school reflects the general pattern in teacher quality in Pakistan (Warick & Reimers, 1995; SPDC, 2003). It raises other gender issues which are discussed later in this paper.

What follows is a brief review of literature in the area of gender and mathematics education in Pakistan, followed by key issues from the field about access, achievement, teacher and teaching materials in mathematics classrooms.

## GENDER AND MATHEMATICS EDUCATION IN PAKISTAN

The relationship between gender and performance in mathematics has received considerable attention in education. In particular the last few decades have seen an increase in research on issues related to boys and girls' access, performance and achievement, and participation in mathematics (Gallaher & Kaufmann, 2005). Providing an overview of the history of schooling (Govinda, 2002) maintains that culturally and traditionally gender roles and expectations have defined males as bread earners and providers and females as care givers to the family at home. In line with these traditional roles and expectations access to schooling and education has been in favour of boys. While most industrially developed nations in the north and west have bridged the disparity in schooling participation rates, many countries in South Asia continue to have significant gaps, with the proportion of girls not attending schools being much higher than that of boys (Jha & Kelleher, 2006).

Pakistani society is segregated strongly along the lines of gender and this segregation is also reflected in the education system. Pakistan takes gender into account when setting up and administering government schools. Boys' schools are those with male students and male teachers, and girls' schools are with female students and female teachers. This is especially the case at elementary and secondary schools levels. Parents prefer to send their girls to a single sex school. In case where secondary schools for girls are not available, parents opt not to send their girls to a co-education secondary school. In case some private schools offer co-education at secondary levels, boys and girls usually sit in separate sections of the same class.

A national survey of schools (grades 4 and 5) in Pakistan studied if this use of gender made any difference to the achievement of male and female students in mathematics and science (Warick

& Reimers, 1995; Warick & Jatoi, 1994). The researchers selected 500 government schools, 1000 teachers, and 11,000 grad 4 and 5 students and 300 supervisors all over the country through standard methods of probability sampling. The sample included 47 percent male, 28 percent female and 25 percent coeducational schools. The researchers gave curriculum based achievement test in mathematics and science and a brief questionnaire to the students of class 4 and 5 of the selected school. They conducted interviews of teachers, head teachers and supervisors of those schools.

It was found that students of male teachers had significantly higher achievement scores in mathematics than students of female teachers in the same grades. However, the study goes on to examine and provide explanations for this finding. In contrast to student gender it was found that teacher gender explained ten times more regarding student differences in their mathematical achievement. However, it was not possible to look at the independent effect of school gender on students' achievement in mathematics as the former overlapped with both student and teacher gender. As such, school gender is likely to be a proxy indicator for student and teacher gender rather than an independent influence on mathematics achievement. The study concluded that rural elementary schools are the main source of gender gap in mathematics achievement. Their most critical deficiency is in the inability of rural schools for female students to retain women teachers with adequate training in mathematics. About 75% of the women teachers come from cities. The study goes on to elaborate the reasons and issues that women teachers from cities face when they are posted in rural areas. Also, the study reports that the gender gap in achievement in mathematics could be caused by higher average level of education for male teachers than for female teachers (Warwick & Reimers, 1995, p.70-72).

The study also provides evidence that the gender gap favouring male teachers is highly significant in rural schools, particularly teachers responsible of more than one grade. It disappears or is reversed in urban setting. For teachers who have university degrees, the gender gap favours women. Female teachers, who cover more curriculum areas, have students with significantly higher achievement scores. It implies that students' achievement depends not only on education of teachers, location of schools but also how the teachers actually teach mathematics. The study highlights the deficiency of rural elementary schools as the main source of gender gap. The female schools in rural areas generally failed to retain women teachers who are adequately trained. Well qualified women from urban areas do not prefer to teach in rural areas because of the challenging living conditions and also they do not receive any incentive for being transferred in to rural areas.

More than a decade later, the findings of this study are still relevant because gender disparities in access, provision and quality of education still persist. While there is improvement in bringing gender parity to access and quality of education the progress is slow and deep inequities against girls persist (MoE, 2006). For example a recent country gender assessment report by World Bank highlights that only 46% of the sample villages in Sind and Punjab had had an elementary girls' school inside the village. In contrast 87% had a boys' elementary school within the village (World Bank, 2005). Likewise, UNESCO report holds that, access to and participation at primary school level has greatly increased in the region and total enrolment rose by 19%. But a fifth of children of official primary school age remain out of school. Two-thirds of out-of-school children are girls (21 million) and the region has the greatest gender disparities in primary education. Very large disparities are found in Pakistan with a female/male enrolment ratio of 0.74.  (UNESCO, 2003-04).

Besides access to basic schooling (and therefore to mathematics), girls' under performance and underachievement in mathematics has been a source of much concern the world over with a widespread belief that males outperform girls in mathematics.  (Chipman, 2005). However, internationally since 1980's trends in students' achievement in United States, UK and other technologically developed countries in Europe show that girls are either closing the gap in mathematics achievement or doing better than boys. This trend is also evident in reports from the results of large international studies on student achievement in mathematics and science such as TIMMS[3] 2003 and PISA, 2005 as noted in (MA, 2008). Pakistan is not a participant in TIMMS

[3] Trends in International Mathematics and Science Study (TIMSS), conducted by the International Association for the Evaluation of Educational Achievement (IEA) which surveys student achievement in mathematics and science. The OECD Programme for International Student Assessment (PISA) which surveys reading, mathematical and scientific literacy levels.

or PISA. However, results of the NEAS[4] a large scale national assessment in mathematics taken at grade four (8-9 yrs) and again at grade eight (12-13 yrs) shows that girls' mean score is higher than boys at grade four level but is lower than boys at grade eight levels. Student achievement in the matric examination results nationwide show that girls are doing better generally than boys in terms of securing the top positions. A closer examination of mathematics results disaggregated for gender is not possible because the Boards of Secondary Education in the public sector do not maintain the data sets for results disaggregated for gender and mathematics. However, the newly launched Aga Khan Examination Board[5] (AKU-EB) in the private sector does maintain results which made it possible to do an analysis of student achievement in mathematics which was separated for boys and girls.

From the two-year examination result data for mathematics, in the AKU-EB has showed that male enrollment is more than the female in both the years; but the performance of females in the examination is significantly better the males. The pass percentage of the females is relatively more than that of the males, and also the high grades are more achieved by females than males. This advantage in favor of girls is also carried through in mathematics (see appendix tables 2 & 3). While the AKU-EB results cannot be taken to represent national trends because it is a private examination board with mostly private schools subscribing to it, it does confirm that in a given sample of students in spite of being proportionally less in number of enrolment the results are better for girls.

The results from AKU-EB and NEAS are confounding and must be probed and considered carefully because it masks several other issues and inequities in mathematics education specifically and secondary education generally and which have been described in some detail in the preceding section. One explanation for girls performing better in matric examination could be

[4] National Education Assessment System, Ministry of Education Government of Pakistan

[5] Aga Khan University Examination Board (AKU-EB) is a Federal Board of Intermediate and Secondary Education established by Aga Khan University (AKU) in response to demand from schools for more appropriate school examinations. AKU-EB was founded in August 2003 in accordance with Ordinance CXIV of the Government of Pakistan to offer examination services for both Secondary School Certificate (SSC) and Higher Secondary School Certificate (HSSC) throughout Pakistan and abroad.

that girls who do eventually make it to the secondary schools are from a relatively advantaged backgrounds in terms of socio-economic strata, in terms of opportunities available in urban settings or and are therefore doing better than boys. Alternatively, it could be explained that girls are known to do better at items which require recall of facts and information and the matric examination is mainly based on such items therefore girls are doing better in spite of the high odds stacked against them in the context of education in Pakistan. Further research is required to undertake a comparative analysis of achievement in mathematics of boys from similar backgrounds

Moreover as (Khan, 2007) points out that enrolment numbers at primary levels are high but progressively decrease at secondary college and tertiary levels. It is estimated that less than 3% of the 17-23 age group make it to higher education and that the gender ratio in public sector universities is at 30-35%, with female enrolment in university at 63, 110 and male enrolment at 131 861. More significantly for the purpose of this paper, Khan confirms that the women who do pursue higher education, very few go on to study mathematics and natural sciences.

Besides access and achievement an issue in mathematics classrooms is that teachers often perpetuate or reinforce the patterns of gender stereo typing and gender bias with implications for boys and girls as learners of mathematics. For example, research has shown that teachers of all grade levels tend to call more often on boys than girls, ask them more complex questions and provide them more academic feedback and attribute their success to ability. More teachers believe that girls succeed in mathematics because of their hard work (Gilbert & Gilbert, 2002). In Pakistan classrooms also teachers reflected similar views about girls and boys learning mathematics. For example, (Halai, 2006) reports from a survey of a cohort of in-service teachers comprising 80% women and 20% men, that 86% of the cohort agreed with the statement provided in the questionnaire "boys are better mathematicians, do you agree? Provide reasons for your answers". Their main reason was that boys are inherently better and therefore do better at mathematics while girls are well behaved and hardworking and so they succeed. Additionally, teachers maintained that boys were better mathematicians because "boys want to apply their learning to different contexts as they participate in activities like shopping for groceries, etc". while girls "want to rote learn and follow rules because they are expected to stay at home and be obedient" (Halai, 2006, p.118-119).

Curriculum content especially textbooks also reinforce gender stereo types in mathematics. Shah and Ashraf (2006) and Halai (2006) conducted systematic textbook analysis from classes I to V of the Sindh Textbook Board from a gender perspective. Their analysis reveals the following representations for boys/men and girls/women which reflect the gendered dimensions of the roles and responsibilities of women, and the implicit gender bias in the mathematics textbooks:

- Frequency of fe/male characters in illustrations they found that the number of female illustrations depicted was greater (i.e. 89 females compared to 61 males). In contrast, there were more frequently cited male characters in texts (123 males in comparison to only 49 females).
- Additionally, men have been portrayed as more powerful in terms of:
- Variety of professions that they are able to take. For example, females have been depicted in 4 professions as compared to males who represent as many as 12 different professions;
- Variety of attire (Males are seen to wear a variety of attires that suit the jobs that they perform. On the other hand, females are shown to be wearing the local dress shalwar kameez on each and every occasion irrespective of the nature of their jobs)
- Males were shown to be using 'technology' (e.g. operating a computer; riding a motorbike) on six occasions whilst females were depicted in a similar role merely once. Thus, access and variety of technologies are represented to be more characteristic of males.
- Females are shown to participate in games less often (n=2) while males are portrayed more frequently (n=12) in similar activities.
- Males are depicted slightly more frequently (i.e. 26 times) in different locations as compared to females who are shown 19 times. This 'locus of activities' has some important gender implications. It suggests that males have more access and mobility to different places as compared to females who are generally home-bound and have limited access. Hence, males are seen to have more opportunities than females to socialise.
- Male names have been used more frequently (n=111; 73%) as compared to female names (n=41; 27%). Similarly, the names of males have been capitalised on more occasions (n=128; 69%) in comparison to the names of females (n=55; 31%). Such bias is likely to suggest a greater involvement of males in mathematics.

- Furthermore, the different types of male and female possessions are also brought out. Boys have been depicted alongside tractors, cars, robots, etc. that imply training for their future role as men. In contrast, girls have not been projected in such a futuristic role preparation as women. (Shah & Ashraf, 2006)

In sum, there is compelling historical evidence that access and achievement to schooling and therefore to mathematics in the case of Pakistan is strongly in favour of boys. There is progress in improving access but deep rooted cultural and social biases about gender roles and expectations permeate textbooks and teacher thinking.

**ACCESS AND EQUITY IN MATHEMATICS CLASSROOMS: CHANGING TRENDS**

The discussion so far illustrates that gender segregation permeates the social and cultural norms and practices in Pakistan and this is also true in the context of education. However, a change in societal trends towards girls' education could be seen at the grassroots level. For example, in the course of developing school profiles in the course of the situation analysis it was found that one of the participating schools was documented as a "Boys School" in the records of the district education office. Initial conversation with teachers and principal were also under the assumption that the research team was entering into a boys' school. However as data collection started on the school profile it was discovered that in secondary classes (IX & X) there were 8 girls each sitting with the boys. The head teacher stated that there was no secondary school for girls in the village and the parents wanted the girls to continue with their education. Hence they had been accommodated in the boys' school. On inquiring if the district education office was aware that this was the situation. He stated that community members in particular the seniors in the community were aware of it. He then started to provide an apologetic explanation that he had requested to the district office to upgrade the elementary girls school to the status of secondary school so that the girls did not face this inconvenience. However, the bureaucracy moved very slowly and the application is still pending. This incident of sending girls to co-education schools and of creating spaces for girls' participation in schooling particularly at secondary levels is a major breakthrough in stereotypical attitudes towards gender segregation. Likewise change in societal position about girls and boys participation in schooling can be seen from the influx of private co-education schools in Pakistan. By some accounts the prevalence of private not for profit schooling is as high as 30% (Andrabi, 2008). While opening basic education to market forces raises other questions, for the purpose here is the fact that almost all private primary and secondary schools are co-education, suggests that the community is ready to send the girls to school irrespective of the school gender.

However welcome it is, the changing trend of providing access to schooling and therefore to mathematic has to be seen in conjunction with quality and equity. Perspective of teachers and head teachers was that with the "same textbooks and syllabus" boys and girls had available the same quality of mathematics teaching once they were in the classroom. However, it was found that girls were being taught by women teachers most of whom had done very little mathematics beyond high school and also had very low self concept as mathematicians. For example, in the interview, one teacher picked up the textbook and pointing to the word problems said "Miss we ourselves do not know how to solve these problems involving volumes of cylindrical shapes. How can we teach problem solving to our students". On the contrary the male teachers maintained that they did not need support in mathematics content knowledge and expressed satisfaction with their teaching because they said that their students all passed in the annual school and matric examinations. While the knowledge gap in teachers could be addressed through intensive in-service provision or through better pre-service preparation and selection, these observations raise other issues. For example, Pajares (2005) maintains that self efficacy beliefs are a significant contributor in decision about whether or not the students would pursue higher education in say mathematics and that "verbal persuasion and vicarious experiences nourished the self efficacy beliefs of girls and women as they set out to meet the challenges to succeed in male dominated academic domains" (p.308). However, in the case of girls in middle and secondary school classrooms in Pakistan are more likely to find teachers who have a low sense of self efficacy in mathematics with concomitant implications for their confidence building and enjoyment of learning mathematics.

Classroom observations showed that the teaching in boys' school was more or less the same as that in the girls' school. It was characterized by teacher explaining to the class mathematics rules and procedures and the students following those rules procedures and memorizing them for recall. This comparable quality was not surprising because in both cases teachers aimed at preparing students for the matric examination which did not necessarily promote problems solving or other higher order mathematical thinking skills.

However, the variable teacher qualification did have implications for the action research project when it came to introducing the problem solving framework in the classroom. As is reported elsewhere the male teachers' uptake was stronger and more confident. It was evident that teacher in the girls' school lacked confidence and adequate knowledge so that their efforts at introducing problem solving had to be provided a scaffold through co-teaching with the university researchers (Halai, forthcoming).

## ACCESS, QUALITY, EQUITY: CONCLUDING REFLECTIONS AND RECOMMENDATIONS

This paper reports on the basis of literature review and field work with teachers, district education officers and other stake holders in mathematics education in a highly gender segregated environment of Pakistan. The findings and discussion so far raises several issues and implications for policy and practice for mathematics education.

First, access to, and entry into mathematics classrooms was largely seen as equity in mathematics education. For example, teachers maintained that both boys and girls did the same mathematics, followed the same textbook and syllabus. Hence there was no inequity in mathematics education once access was provided to girls along with the boys. Second, improving the quality of mathematics curriculum cannot be devoid of concerns of gender equity. For example, it was seen that a pattern persists of female teachers being less mathematically qualified and then their male counterparts. This state had serious negative connotations for the gender segregated classrooms in Pakistan with the implication that girls would be taught mathematics by teachers who were not necessarily academically qualified in mathematics and who had most likely a low self concept as mathematicians. Third, access, quality and equity at the grassroots level in mathematics classrooms is linked to gender equity in the policies and provision of teachers, teacher development and textbook preparation. Unless these two levels of mathematics education are addressed access to mathematics classrooms will not translate into equity in mathematics classrooms. For example, provision of teachers with comparable qualification must be ensured with appropriate implementation of policies and provision of support for teachers to upgrade their knowledge of mathematics. Likewise, officially prescribed curriculum materials must be developed along guidelines to ensure gender equity. Fourth, improving gender parity in mathematics classrooms is a sociological process rooted in deep seated beliefs about gender roles and expectations. Teachers would need to question their deep rooted assumptions about gender roles in society and its implications for positive or weak role models for mathematics learners. A recommendation for teacher education courses is to build on teachers' lives and experiences and avoid false dichotomies in personal and professional as these dichotomies impede a change in teachers' belief and perceptions about gender and mathematics teaching and learning.

To conclude access, achievement and quality of mathematics education in Pakistan shows persistent gender bias in favour of boys. However, there are signs of change in trends towards girls' access to education and to mathematics. An important element would be to see this trend in conjunction with equity in quality of mathematics education for boys and girls in Pakistan.

Acknowledgement: I wish to thank Nusrat Rizvi, Sherwin Rodrigues, Tauseef Akhlaq, Sahreen Chauhan and Munira Amir Ali for their support and input in undertaking the review.

**REFERENCES**

A. Gallaher & J. Kaufmann (Eds.) (2005). *Gender differences in mathematics, an integrated psychological approach.* UK: Cambridge university press

Andrabi, T. (2008). A dime a day, possibilities and limits of private schooling in Pakistan. *Comparative Education Review*, 52(3), 329-356

Chipman, S. F. (2005). Research on the women and mathematics issue. In A. Gallaher & J. Kaufmann (Eds.). *Gender differences in mathematics, an integrated psychological approach.*UK: Cambridge University Press

Gilbert, M. & Gilbert L.. (2002).Challenges in implementing strategies for gender –aware teaching. *Mathematics Teaching in the Middle School, 7(*9), 522-27

Halai, A. (2006) Boys are better mathematicians: Gender issues from mathematics classrooms in Pakistan. In J. Rarieya & R. Qureshi (Eds.) *Gender and Education in Pakistan*. Karachi: Oxford University Press

Halai, A. (forthcoming). Initiating change in the classrooms. In L. Tikly & A. Barrett (Eds). *Implementing education quality in low income countries: challenges for policy, practice and research.* Routledge

Jha F. & Kelleher, F. (2006). Boys' underachievement in mathematics. *An exploration in selected Common Wealth countries*. ISBN: 0-85092-845-1 / 978-0-85092-845-7

Khan, S. A. (2007). Gender issues in higher education in Pakistan. http://www.acu.ac.uk/12-13GenderHEPakistanonline.pdf retrieved 31st October 2008

Ma X. (2008). Within school gender gaps in reading mathematics and scientific literacy. *Comparative Education Review*, 52(3), DOI 10.1086/588762

Ministry of Education (2006). *National curriculum for mathematics grades I-XII, 2006*. Government of Pakistan Ministry of Education, Islamabad

Ministry of Education (June, 2006). *Press release, Education Ministry Notified New Scheme of Studies*. NO F1-2/2006-DD. http://www.moe.gov.pk/mediacell.htm

Pajares, F. (2005). Gender differences in mathematics self-efficacy beliefs. In A. M. Gallagher & J. C. Kaufman (Eds.), *Gender differences in mathematics: An integrative psychological approach* (pp. 294–315). New York: Cambridge University Press.

Shah, A. & Ashraf, D. (2006). Gender analysis of text books: A research report. Aga Khan University Institute for Educational Development: Karachi.

Social Policy Development Centre SPDC Survey (2003). *Social Development in Pakistan: The State of Education*. Annual Review 2002-03. ISBN 969-8407-01-4 SPDC: Karachi Pakistan

UNESCO (2003-04). Gender and Education for all, The Leap to Quality. *Global Monitoring Report.* http://www.unesco.org/education/efa_report/zoom_regions_pdf/soweasia.pdf

Warwick, D. P. & Jatoi, H, (1994). Teacher gender and student achievement in Pakistan. *Comparative Education Review*, 38(3)

Warwick, D. P. & Reimers, F. (1995). Gender and Achievement. In *Hope or Despair? :Learning in Pakistan's Primary Schools*: London: Praeger Publishs.

World Bank (2005). Bridging the gender gap: challenges and opportunities, *Country gender assessment report World Bank*.

**Appendix**

**Table 1**

| Overall status | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2007 | | | | 2008 | | | |
| | Gender | | | | Gender | | | |
| | F | | M | | F | | M | |
| | Count | Column N % | Count | Column N % | Count | Column N % | Count | Column N % |
| **Absent** | 12 | 1.9% | 45 | 4.1% | 7 | .7% | 25 | 2.0% |
| **Fail** | 105 | 16.2% | 255 | 23.3% | 124 | 12.4% | 323 | 25.7% |
| **Pass** | 516 | 79.8% | 774 | 70.7% | 872 | 86.9% | 907 | 72.2% |
| **Withheld** | 14 | 2.2% | 20 | 1.8% | 0 | .0% | 2 | .2% |
| **Total** | **647** | **100.0%** | **1094** | **100.0%** | **1003** | **100.0%** | **1257** | **100.0%** |

Source: http://www.aku.edu/AKUEB/onlineresults.shtml retrieved October 2008

**Table 2**

| | **Year** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2007** | | | | **2008** | | | |
| | **Gender** | | | | **Gender** | | | |
| | **F** | | **M** | | **F** | | **M** | |
| **Subject Status** | **Count** | **Column N %** | **Count** | **Column N %** | **Count** | **Column N %** | **Count** | **Column N %** |
| **Absent** | 7 | 1.1% | 33 | 3.0% | 5 | .5% | 15 | 1.2% |
| **Fail** | 106 | 16.4% | 187 | 17.1% | 112 | 11.2% | 286 | 22.8% |
| **Pass** | 534 | 82.5% | 873 | 79.8% | 886 | 88.3% | 956 | 76.1% |
| **Withheld** | 0 | .0% | 1 | .1% | 0 | .0% | 0 | .0% |
| **Total** | **647** | **100.0%** | **1094** | **100.0%** | **1003** | **100.0%** | **1257** | **100.0%** |

Source: http://www.aku.edu/AKUEB/onlineresults.shtml retrieved October 2008